

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
15 September 2005 (15.09.2005)

PCT

(10) International Publication Number
WO 2005/085739 A1

(51) International Patent Classification⁷: **F28F 9/02**,
B60H 1/32, F25B 39/02, F28F 21/08

(21) International Application Number:
PCT/JP2005/004409

(22) International Filing Date: 8 March 2005 (08.03.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
2004-065615 9 March 2004 (09.03.2004) JP
60/559,961 7 April 2004 (07.04.2004) US
2005-061857 7 March 2005 (07.03.2005) JP

(71) Applicant (for all designated States except US): **SHOWA DENKO K.K.** [JP/JP]; 13-9, Shiba Daimon 1-chome, Minato-ku, Tokyo, 1058518 (JP).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **HIGASHIYAMA, Naohisa** [JP/JP]; c/o SHOWA DENKO K.K., OYAMA REGIONAL OFFICE, 480, Inuzuka 1-chome, Oyama-shi, Tochigi, 3238678 (JP). **TSUNODA, Kenji** [JP/JP]; c/o SHOWA DENKO K.K., OYAMA REGIONAL OFFICE, 480, Inuzuka 1-chome, Oyama-shi, Tochigi, 3238678 (JP).

(74) Agents: **HIBI, Norihiko** et al.; c/o KISHIMOTO & CO., 3rd Floor, Inaba Building, 13-18, Nishishinsaibashi 1-chome, Chuo-ku, Osaka-shi, Osaka, 5420086 (JP).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

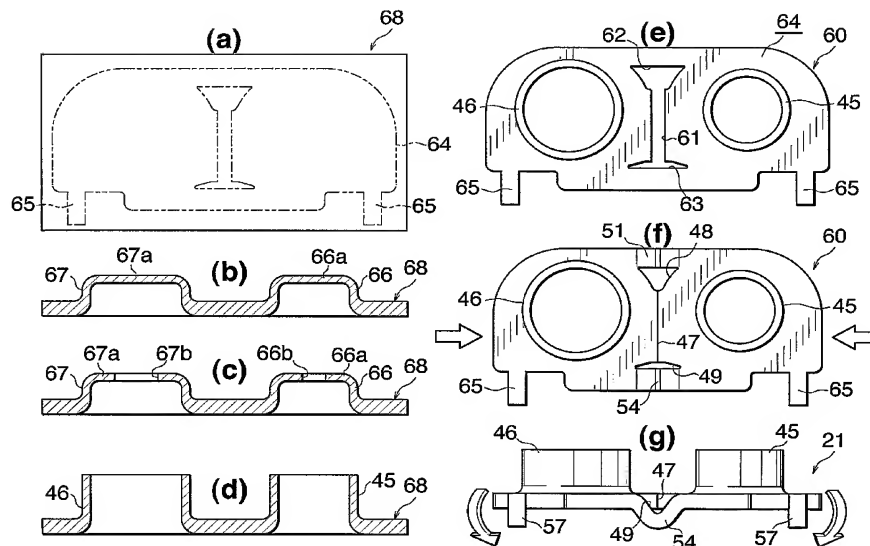
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

[Continued on next page]

(54) Title: SEMIFINISHED JOINT PLATE, JOINT PLATE, PROCESS FOR FABRICATING JOINT PLATE AND HEAT EXCHANGER



(57) Abstract: A semifinished joint plate 60 has a refrigerant inlet portion 45 and a refrigerant outlet portion 46 spaced apart in the front-rear direction. The semifinished plate 60 has an upwardly or downwardly extending slit 61 formed between the inlet portion 45 and the outlet portion 46, and slit width adjusting portions 62, 63 extending through the thickness of the plate 60, having a larger width than the slit 61 and communicating respectively with the upper and lower ends of the slit 61. A portion of the semifinished plate 60 above the upper adjusting portion 62 and a portion thereof below the lower adjusting portion 63 are bent to shorten the plate

WO 2005/085739 A1



— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.